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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Mark C. Waterbury et al.
Serial No: 10/008,911
Filed: December 6, 2001
For: WATER DISSOLVABLE TAPE

Exr. Daniel R. Zirker
Art Unit: 1771
Confirmation No.: 7218

Commissioner of Patents
and Trademarks
Washington, D.C. 20231

August 7, 2003

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DECLARATION OF COLLEEN ZIELSKE

Sir:

I, Colleen Zielske declare and state that:

I have read and understand the above-identified patent application for Water Dissolvable Tape.

I am the Technical Manager for CNC Daymark Corporation, Bowling Green, Ohio, the assignee of the above-identified patent application.

I have worked in the label industry for food service businesses for 8 years.

The Case Western Reserve University granted me a Bachelor of Science Degree in Chemical Engineering in the year 1995.

I have read and understand the Office Action mailed May 15, 2003, in the above-identified patent application.

I have read and understand U.S. Patent No. 5,624,751 Spies et al.

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I have read and understand U.S. Patent No. 5,464,692, Huber.

I am familiar with and studied the prosecution history of the above-identified patent application.

I understand the reasons for the Examiner's rejection.

I am familiar with and studied the prior art upon which the Examiner relies.

The inventors of the above-identified patent application have invented a self-wound, water dissolvable, tape comprising a water dissolvable, continuous phase substrate having a first surface and a second surface, a water dissolvable, continuous phase adhesive layer on the first surface of the substrate, and a water dissolvable, continuous phase adherent layer on the second surface of the substrate. The water dissolvable, continuous phase adhesive layer is at least one organic compound incorporating one or more high polarity function groups of an alcohol functionality, a ketone functionality, an aldehyde functionality, or an ester linkage.

As explained on pages 5 to 7 of the specification, water dissolvable within the context of this invention means dispersible, dissolution or susceptible of dissolution in water within a convenient time frame.

The term, "dissolve" and its related forms, "dissolvable," and "dissolved," and "dissolution," in the context of this patent is defined to refer to a separation of a material into small components under the influence of a solvent medium, and

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not to a complete separation into separate molecules or atoms. For example, a paper material is said to be dissolved if it breaks down into separated cellulose fibers, even though those fibers themselves are not separated into their constituent cellulose and lignin molecules. Similarly, an adhesive layer can be dissolved and effectively removed if it is separated into aggregations of molecules. Similarly, an adhesive can be dissolved and effectively removed if it is separated into aggregations of molecules that are each capable of water removal, particularly if they are encased in a layer with a hydrophilic nature to facilitate their suspension into a latex, colloid, or micellar form.

Colloids or micelles must be small enough to freely flow down a drain without clogging. Also, they are not visible to the naked eye. This is different than repulpable. To be repulpable, the colloid/micelle must be large enough to be effectively filtered and removed. A dissolvable adhesive does not have affinity to itself, but a repulpable adhesive does.

To achieve dissolution of the entire tape, comprising, in general, a release layer, a substrate layer, and an adhesive layer, each layer, individually and collectively, must be susceptible of dissolution in water within a convenient frame of time. Typically, this is in the range of 30 seconds.

The water dissolvable materials claimed in the above-identified patent application meet this test of dispensability or susceptibility of dissolution in water

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within a convenient time frame. For example, an adherent layer of lechithin meets this test as does a very thin adherent layer of silicone. Applicants' starch or paper substrate meets the test as do the adhesives claimed by Applicants.

The repulpable adhesives of Spies et al., however, do not meet Applicants' test for dissolvable as set forth above. The re-pulping of Spies et al. requires different materials than Applicants' invention because Spies et al. recycle the carton sealing tape. Applicants' tape components must disperse in the sense that they will be separated into small, removable constituent portions leading to direct removal.

See page 6, lines 1 – 9 of the specification. The repulpable release layer of Spies et al. must be silicone free, whereas Applicants adherent layer include silicones.

The release layers of Spies et al. are copolymers of amide/styrene, in particular N-Stearylmaleamide and styrene, mixed with film-forming agents, in particular polyvinyl alcohols of various molecular weights and degrees of hydrolysis.

Spies et al. only disclose adhesives based on polymers of acrylic acid, other comonomers and a considerable amount of plasticizers or resins.

Nowhere do Spies et al. disclose or suggest an adhesive layer using the linkages Applicants claim, namely, the functionalities set forth in the claims.

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Huber discloses a recoverable masking tape. Huber discloses a flexible, conformable, polymeric tape. This polymer substrate is not the dispersible substrate Applicants claim.

Huber claims to use appropriate water-soluble adhesives that are commercially available. As an example of a suitable water soluble adhesive Huber mentions XR1377/224 available from H.B. Fuller Co., St. Paul, Minn. Based on my experience in the tape and label industry, I have learned that this adhesive is not commercially available.

Further, Huber incorporates the release agents into film forming compositions which include among other ingredients, pressure sensitive adhesives.

Huber does not disclose or suggest a water dissolvable, continuous phase abherent layer. Huber does not expressly teach the genus of a release coating. Huber only discloses release agents mixed into the adhesives.

The present invention addresses the need for a water dissolvable adhesive tape by enabling such tape to be "self-wound," that is, to be directly wound onto itself on a spool without the inclusion of an intervening layer of release material between each layer of labels or tape. This is achieved through the use of combinations of adhesive layer formulations and release layer

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formulations that are mutually adherent, thereby allowing the easy unwinding of the tape for use.

Clearly, the inventors have provided a unique solution to a special problem.

I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements in the like so made are punishable by fine or imprisonment, or both under §1001 of Title 18 of The United States Code and any such willful false statements may jeopardize validity of the application or any patent issued thereon.

August 7, 2003
Date

Colleen Zielske

OFFICIAL